



REACTIVATION OF THE BACILLUS CALMETTE GUERIN (BCG) SCAR COMMON WITH KAWASAKI DISEASE (KD) RARE WITH MEASLES: A CASE REPORT

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ABSTRACT

Erythema, induration at a previous BCG inoculation site highly specific feature of Kawasaki disease. It can also occur with measles though very rare (1). We find BCG reactivation in an 8 months old girl (Fig-1). Infants are protected from measles by the transplacentally acquired immunity from mother till the age of 4 to 6 months and these antibodies are undetectable by the age of 9 months(2). It means 8 months age is critical for development of measles in unvaccinated infant.

KEY WORDS: Measles, Kawasaki Disease, BCG, Scar, Reactivation.

CASE PRESENTATION:

A eight month old girl baby was presented initially with fever, cough and coryza followed by erythematous skin rash and 2 cm area of induration of BCG scar site(Fig-2). On that time no other clinical features of KD were present. To the best of our knowledge the case report to describe BCG reactivation in child with measles is there[1]. Laboratory confirmation by virus isolation from throat swab and also detection of measles specific antibodies [IGM] is not easily available and not done in this case. In 2017, 11000 people died from measles and increase to 140000 last year according to data compiled by the WHO [3]. Considering age, clinical features vitamin A was given without any improvement. On day 5 baby was developed fissuring of lip, strawberry tongue and the hand, feet became swollen. Blood investigation revealed as follows, Hb-6.8 gm/dl, WBC-13700/Cmm, Platelet count-6lakhs/Cmm, CRP- 143mg/L, Echocardiography-Structurally normal heart with normal ventricular function. Dilated left main coronary artery.



Fig. 1: Induration of BCG scar in a eight month old girl

DISCUSSION:

BCG scar reactivation can occur in KD and rarely with measles. This clinical manifestation can be a useful sign in making a diagnosis especially in the atypical KD(4). BCG is one of the most widely used vaccine globally for prevention of miliary tuberculosis, tubercular meningitis. It is administered in left upper arm intradermally following which a scar develops after few months (5). The usual phenomenon following intradermal inoculation of BCG vaccine are as follows, a small papule appears around 2 months, gradually enlarges and ulcerate within 2 to 4 months and heals over the next few months (6). The possible mechanism of erythema and crusting of BCG with measles is the reactivation and multiplication of live but dormant mycobacterium bovis that may have been present at BCG vaccination site facilitated by immune suppression with measles infection. Other possible mechanism of BCG reactivation is an immune mediated reaction. This reaction of BCG scar in Kawasaki disease may be due to cross reactivity between mycobacterial and human Heat Shock Protein (HSP), in particular mycobacterium HSP65 and human homologous HSP63(7,8). KD affect the children under the age of 4 years and with the peak incidence at 9 to 11 months of age(9). In infant the most common finding are fever (100%) and oral mucosal

changes(72%)(10). The significant risk factor for the development of coronary artery disease is delayed diagnosis of KD leading to the delayed administration of therapy(11). IKD(Incomplete Kawasaki Disease) cases are increasing with an incidence of 10 to 45% and early diagnosis is important to prevent the development of coronary artery disease in 15 to 25% of untreated patients (12). Treatment with IVIG 2gm/kg within first 10 days reduces the sequel of the vasculitis to 2-4%(13). Specific early sign of the KD as reactivation of BCG scar was first highlighted in the Japanese literature (14).



Fig. 2: Erythematous skin rash involving whole body of the same baby

In conclusion, in this case we highlights BCG scar reactivation is an early sign of atypical KD, especially in countries like India where BCG vaccine is a part of National programme of immunization. The incidence of Kawasaki disease become higher during COVID-19 Pandemic.

REFERENCES:

1. Measles infection causing Bacillus Calmette-Guerin reactivation: a case report. Sobana Mthuvulu, Key Shiao-Chong Lim, Ling-yin Huang, Shi-Chin and Anand Mohan. BMC Pediatrics 19, Article number: 251 (2019.)
2. IAP textbook of Paediatrics 6th edition.
3. WHO report 5.12.19
4. Burns J C, Glode M P. Kawasaki syndrome Lancet 2004; 364: 533-44.
5. Ottenhoff TH, Kaufmann SH. Vaccine against tuberculosis: PLoS Pathog 2012; 8:e1002607 doi:10.1371/journal.ppat.1002607.
6. Jern AM, Drolet BA. Other cutaneous bacterial. In: Kliegman RM, Stanton BF, St Geme JW, Schor NF, editors. Nelson TEXTBOOK of Pediatrics. Philadelphia: Elsevier; 2010. p.3208-13.
7. Yokota S. Heat Shock protein as a predisposing and immunopotentiating factor in Kawasaki disease. Pediatr Int 1991; 33(6):756-64.
8. Sireci G, Dieli F, Salerno A. T Cell recognize an immunodominant epitope of heat shock protein 65 in KD. Mol Med. 2000; 6(7):581.
9. Hasan KAT, Ilker D, Klc KE, Tevfik K, Semad, Bulent CA, Kawasaki disease: a case report in extreme of paediatrics infec Dis clinical pract 2006; 14(5):333-334 [Google

Scholar]

10. Lee SJ, Kim HS, Sohn S, clinical characteristics of Kawasaki disease in infants younger than 3 months of age J Korean Pediatr SOC 2003;46(6):591-596(Google scholar).
11. Palinkas LA, Nilder MS, Kao et al. Isocial and cultural risk factor for coronary artery disease is delayed diagnosis of KD. Pediatr Res 2003;53:326A[Google scholar].
12. Witt MT, Minich LL, Bohasack JE, Young PC. KD: patient being diagnosed who do not meet the American Heart Association criteria. Paediatrics 1999; 104(1): 10 [Pubmed] [Google scholar].
13. Kato H, Susima RJ, Akasi T, et al. Long term consequences of KD: a 10 to 21 year follow up study of 594 pt. circulation 1996; 94(6): 1379-1385 [Pub Med].
14. Takayama J, Ynase Y, Kawasaki T study of the change of the site of the BCG inoculation in MCLS. JPN J Pediatr 1982;86 567-572(Google scholar.)